

PROJECT NUMBER: 1720
PROJECT TITLE: Analytical Microscopy
PROJECT LEADER: V. L. Baliga
PERIOD COVERED: June, 1988

I. LOW SIDESTREAM CIGARETTE PAPERS (Baliga)

- A. Objective: Develop image analysis procedure to measure visibility of sidestream smoke.
- B. Results: A glass front chamber was constructed to house cigarettes during static burn. Video tapes were made of the smoke plumes and the luminance measured at two heights above the cigarette (10 mm and 15 mm). The luminance values for Marlboro 85 were significantly greater than the cigarette, G8DR.
- C. Conclusion: Image analysis can be used as a device to measure sidestream visibility. The conditions for smoking the cigarettes and measurement points in the smoke plume must be optimized and standardized to get reliable data.

II. RESPONSE TO ANALYTICAL REQUESTS (Baliga)

- A. Objective: Provide analytical support to R&D.
- B. Results: Material separated from 'Chewbacca' gum was submitted to analytical microscopy to determine what leaf material was used and determine the distribution of leaf particles to granular material in the sample. The leaf material resembled tobacco. The epidermal cell patterns, trichomes, and stomata were similar in structure to the tobacco leaf. The stem material contained spiral xylem elements similar to tobacco stems. The leaf material contained Ca, Si, Cl, and Mg, while the granular material contained Ca and Si. Within the sample, 47% of the sample consisted of leaf fragments and stems and 53% was white granular material (1).
- C. References

Baliga, V., "Chewbacca Gum - Particle Identification," memo to B. Kanipe, June 8, 1988.

III. MISCELLANEOUS (Sanders)

- A. Results: K. Sanders attended a one week course on the theory and application of the scanning electron microscope at Lehigh University, Lehigh, PA.